

§ 172.180

(d) If a type IIIG hull is required, except as specified in paragraph (e) of this section, design calculations must show that a vessel—

(1) 410 feet (125 meters) in length or longer can survive damage at any location; and

(2) Less than 410 feet (125 meters) in length can survive damage at any location, except in the main machinery space.

(e) The calculations in paragraphs (c) and (d) of this section need not assume damage to a transverse bulkhead unless it is spaced closer than the longitudinal extent of collision penetration specified in Table 172.180 from another transverse bulkhead.

(f) If a main transverse watertight bulkhead or transverse watertight bulkhead bounding a side tank or double bottom tank has a step or a recess that is longer than 10 feet (3.05 meters) located within the extent of penetration of assumed damage, the vessel must be shown by design calculations to survive damage to this bulkhead. The step formed by the after peak bulkhead and after peak tank top is not a step for the purpose of this regulation.

§ 172.180 Extent of damage.

For the purpose of § 172.170—

(a) Design calculations must include both side and bottom damage, applied separately; and

(b) Damage must consist of the penetrations having the dimensions given in Table 172.180 except that, if the most disabling penetrations would be less than the penetrations given in Table 172.180, the smaller penetration must be assumed.

TABLE 172.180—EXTENT OF DAMAGE

COLLISION PENETRATION	
Longitudinal extent	$0.495L^{2/3}$ or 47.6 feet ($((1/3)L)^{2/3}$ or 14.5m) whichever is shorter.
Transverse extent ¹	$B/5$ or 37.74 feet (11.5m) ² whichever is shorter.
Vertical extent	From the baseline upward without limit.
GROUNDING PENETRATION AT THE FORWARD END BUT EXCLUDING ANY DAMAGE AFT OF A POINT 0.3L AFT OF THE FORWARD PERPENDICULAR	
Longitudinal extent	$0.495L^{2/3}$ or 47.6 feet ($((1/3)L)^{2/3}$ or 14.5m) whichever is shorter.
Transverse extent	$B/6$ or 32.81 feet (10m) whichever is shorter.

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TABLE 172.180—EXTENT OF DAMAGE—
Continued

Vertical extent from the molded line of the shell at the centerline.	$B/15$ or 6.6 feet (2m) whichever is shorter.
GROUNDING PENETRATION AT ANY OTHER LONGITUDINAL POSITION	
Longitudinal extent	$L/10$ or 16.41 feet (5m) whichever is shorter.
Transverse extent	$B/6$ or 16.41 feet (5m) whichever is shorter.
Vertical extent from the molded line of the shell at the centerline.	$B/15$ or 6.6 feet (2m) whichever is shorter.

¹ Damage applied inboard from the vessel's side at right angles to the centerline at the level of the summer load line assigned under Subchapter E of this chapter.

² B is measured amidships.

§ 172.185 Permeability of spaces.

(a) When doing the calculations required in § 172.170, the permeability of a floodable space other than a machinery space must be as listed in Table 172.060(b).

(b) Calculations in which a machinery space is treated as a floodable space must be based on an assumed machinery space permeability of 85%, unless the use of an assumed permeability of less than 85% is justified in detail.

(c) If a cargo tank would be penetrated under the assumed damage, the cargo tank must be assumed to lose all cargo and refill with salt water up to the level of the tankship's final equilibrium waterline.

§ 172.195 Survival conditions.

A vessel is presumed to survive assumed damage if it meets the following conditions in the final stage of flooding:

(a) *Final waterline.* The final waterline, in the final condition of sinkage, heel, and trim, must be below the lower edge of an opening through which progressive flooding may take place, such as an air pipe, or an opening that is closed by means of a weathertight door or hatch cover. This opening does not include an opening closed by a—

- (1) Watertight manhole cover;
- (2) Flush scuttle;
- (3) Small watertight cargo tank hatch cover that maintains the high integrity of the deck;
- (4) A Class 1 door in a watertight bulkhead within the superstructure;
- (5) Remotely operated sliding watertight door; or